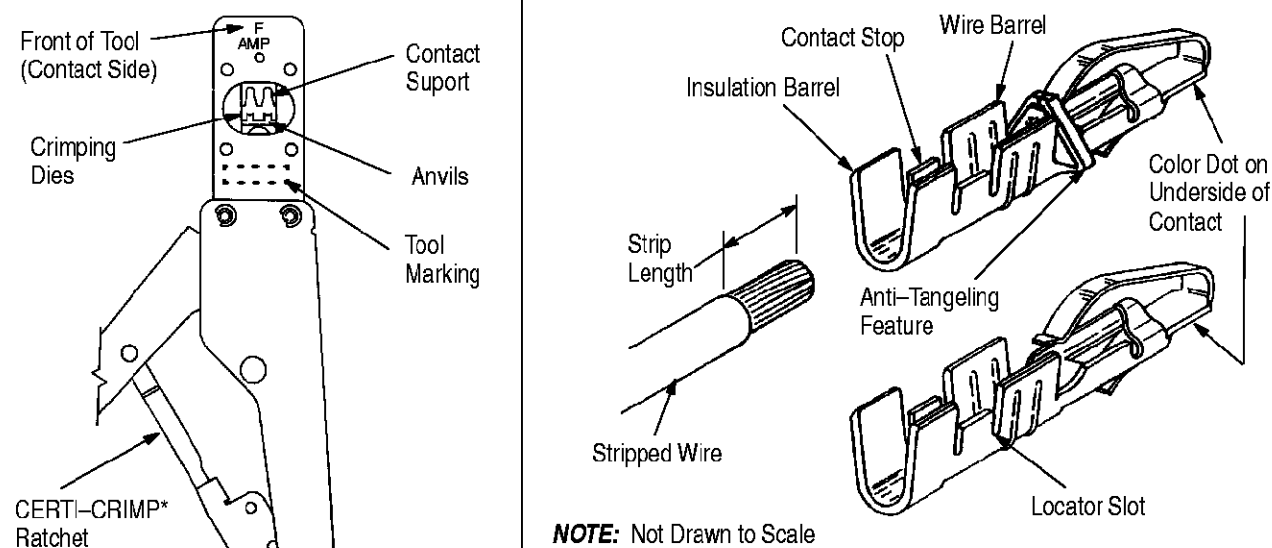


PROPER USE GUIDELINES

Cumulative Trauma Disorders can result from the prolonged use of manually powered hand tools. Hand tools are intended for occasional use and low volume applications. A wide selection of powered application equipment for extended-use, production operations is available.



WIRE SIZE RANGE (AWG)	INSULATION DIAMETER	CRIMP SYMBOL	CONTACT PART NUMBERS		COLOR CODE	WIRE STRIP LENGTH●
			W/O ANTI-TANGLE FEATURE	W/ ANTI-TANGLE FEATURE		
26-22	1.27 to 1.52 [.050 to .060]	26-22	60081-[]	583990-[] 583992-[]	Orange	3.96 to 4.37 [.156 to .172] 5/32 to 11/64
21-18	3.05 [.120] Max Sum	21-18 (2) 22	42840-[] 583272-[]	583989-[]	Green	3.96 to 4.37 [.156 to .172] 5/32 to 11/64

● Values in brackets are decimal equivalents of the fractions.

Figure 1

1. INTRODUCTION

Hand Crimping Tool 90028-3 (Figure 1) is designed for crimping AMP-LEAF* loose-piece contacts listed in the table. Contacts with the anti-tangling feature **must** be crimped in this tool. Read these instructions thoroughly before starting.

NOTE

Dimensions in this instruction sheet are in metric units [with U.S. customary units in brackets]. Figures and illustrations are for identification only and are not drawn to scale.

Reasons for reissue of this instruction sheet are provided in Section 6, REVISION SUMMARY.

2. DESCRIPTION (See Figures 1, 2, and 3)

The FRONT of the tool (contact side), into which the contact is inserted, has the tool number marked on it.

The BACK of tool (wire side), into which the wire is inserted, has the Crimp Symbol marked above each crimp section.

The tool features two fixed dies (crimpers), two movable dies (anvils), a contact locator, a wire stop, an ejector, a contact support and a CERTI-CRIMP ratchet. The contact locator positions the contact between the crimping die and anvil before crimping. The wire stop limits the insertion distance of the stripped wire into the contact before crimping. The ejector ejects the crimped contact when the tool handles are FULLY opened. The contact support prevents the contact from bending during the crimping procedure. The CERTI-CRIMP ratchet assures full crimping of the contact. Once engaged, the ratchet will not release until the handles have been FULLY closed.

CAUTION

The crimping dies bottom before the CERTI-CRIMP ratchet releases. This is a design feature that ensures maximum electrical and tensile performance of the crimp. Do NOT re-adjust the ratchet.

3. CRIMPING PROCEDURE

Refer to the table in Figure 1, and select wire of the specified size and insulation diameter. Strip the wire to the length indicated — do NOT cut or nick the wire strands. Select an applicable loose-piece contact, and identify the appropriate crimp section (according to the crimp symbol markings on the BACK of the tool). Proceed as follows:

1. Hold tool so BACK side (wire side) faces you. See Figure 2 or 3.
2. Ensure that tool ratchet is released by squeezing tool handles and allowing them to open FULLY.
3. Looking straight into BACK of appropriate crimp section, insert contact, (insulation barrel first) into FRONT of crimp section. Position contact between crimpers so contact locator enters locator slot in contact. The wire barrel should butt against the contact locator.

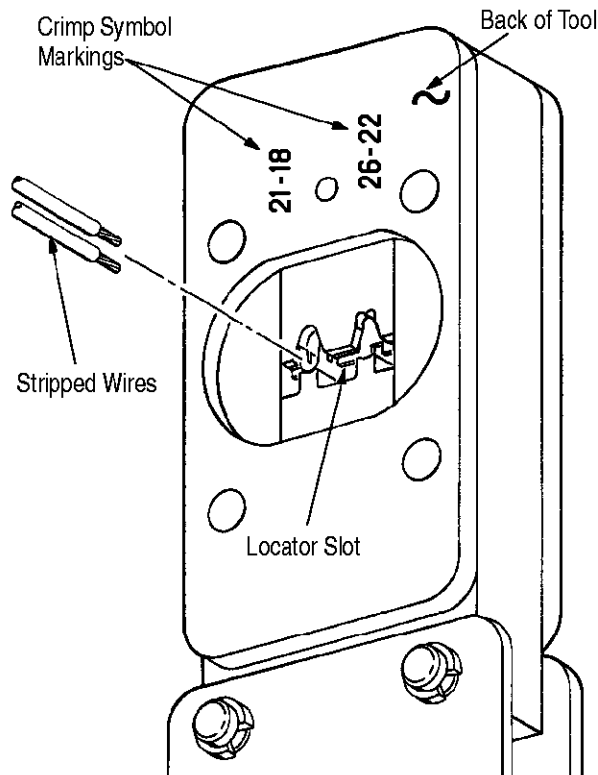


Figure 2

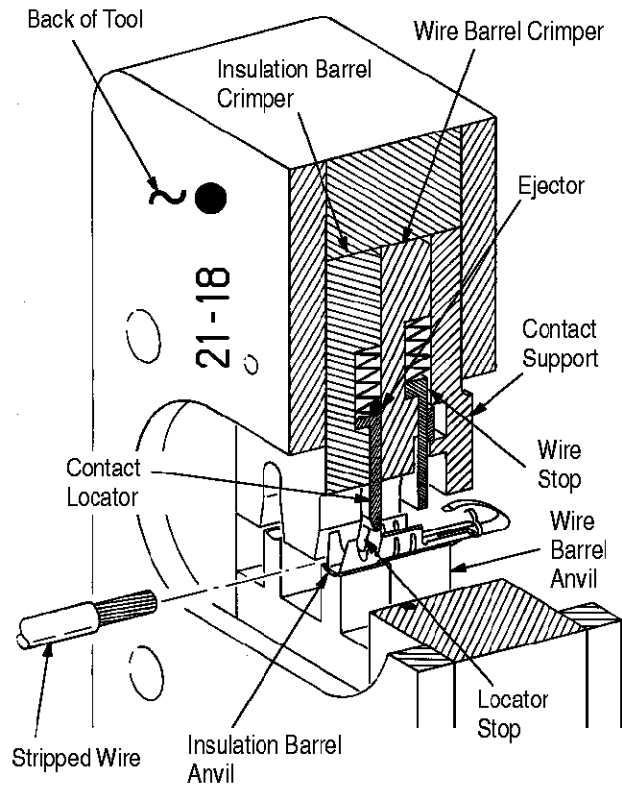


Figure 3

4. Holding contact in this position, squeeze tool handles together until insulation barrel anvil starts entry into insulation crimper. Do NOT deform insulation barrel or wire barrel.
5. Insert a properly stripped wire into wire barrel of contact until wire butts against wire stop.
6. Holding wire in place, crimp contact to wire by squeezing tool handles together until ratchet releases.
7. Allow tool handles to open FULLY so ejector can push contact out of crimpers. Remove crimped contact from tool.

4. MAINTENANCE AND INSPECTION PROCEDURE

These instructions have been approved by Design, Production, and Quality Control Engineers to provide documented maintenance and inspection procedures. Through test laboratories and the inspection of production assembly, the procedures described herein have been established to ensure quality and reliability of hand crimping tools.

Customer-replaceable parts are listed in Figure 5. A complete inventory should be stocked and controlled to prevent lost time when replacement of parts is necessary. When parts are needed, order by part number and description.

4.1. Daily Maintenance

It is recommended that each operator of the tool be made aware of — and responsible for — the following four steps of daily maintenance:

1. Remove dust, moisture, and other contaminants with a clean brush or a soft, lint-free cloth. Do NOT use objects that could damage the tool.
2. Make sure the proper retaining pins are in place and secured with the proper retaining rings.
3. Make certain all pins, pivot points, and bearing surfaces are protected with a THIN coat of any good SAE 20 motor oil.
4. When the tool is not in use, keep the handles closed to prevent objects from being lodged in the crimping dies and store the tool in a clean, dry area.

4.2. Periodic Inspection

Regular inspections should be performed by quality control personnel. A record of scheduled inspections should remain with the tool and/or be supplied to supervisory personnel responsible for the tool. Though recommendations call for at least one inspection a month, the inspection frequency should be based on the amount of use, ambient working conditions, operator training and skill, and established company standards. These inspections should be performed in the following sequence:

A. Lubrication

Lubricate all pins, pivot points, and bearing surfaces with SAE 20 motor oil as follows:

- Tool used in daily production — lubricate daily
- Tool used daily (occasional) — lubricate weekly
- Tool used weekly — lubricate monthly

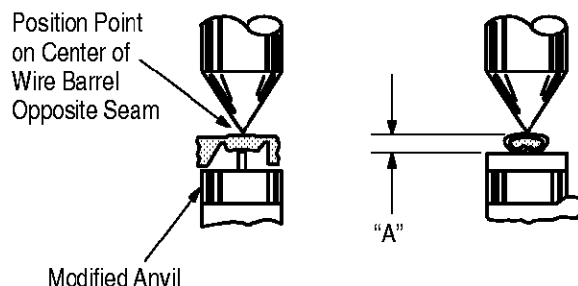
Wipe excess oil from tool, particularly from crimping area. Oil transferred from the crimping area onto certain terminations may affect the electrical characteristics of an application.

B. Visual Inspection

1. Remove all lubrication and accumulated film by immersing the tool (handles partially closed) in a suitable commercial degreaser that will not affect paint or plastic material.
2. Make certain all retaining pins are in place and secured with retaining rings. If replacements are necessary, refer to parts listed in Figure 5.
3. Close the tool handles until the ratchet releases, then allow tool handles to open freely. If they do

not open quickly and fully, the spring is defective and must be replaced. See Section 5, REPLACEMENT AND REPAIR

4. Inspect the head assembly, with special emphasis on checking for worn, cracked, or broken dies. If damage to any part of the head assembly is evident, return the tool for evaluation and repair. See Section 5, REPLACEMENT AND REPAIR.



TERMINAL NUMBER (STRIP)	WIRE SIZE (AWG) MAX	CRIMP SECT WIRE SIZE MARKING	CRIMP HEIGHT DIM "A"
60081-[] 583990-[] 583992-[]	22	26-22	0.775 ±0.038 [.0305] ±.0015]
42840-[] 583272-[] 523989-[]	(2) 22	21-18	1.029 ±0.038 [.0404 ±.0015]

Figure 4

C. Crimp Height Inspection

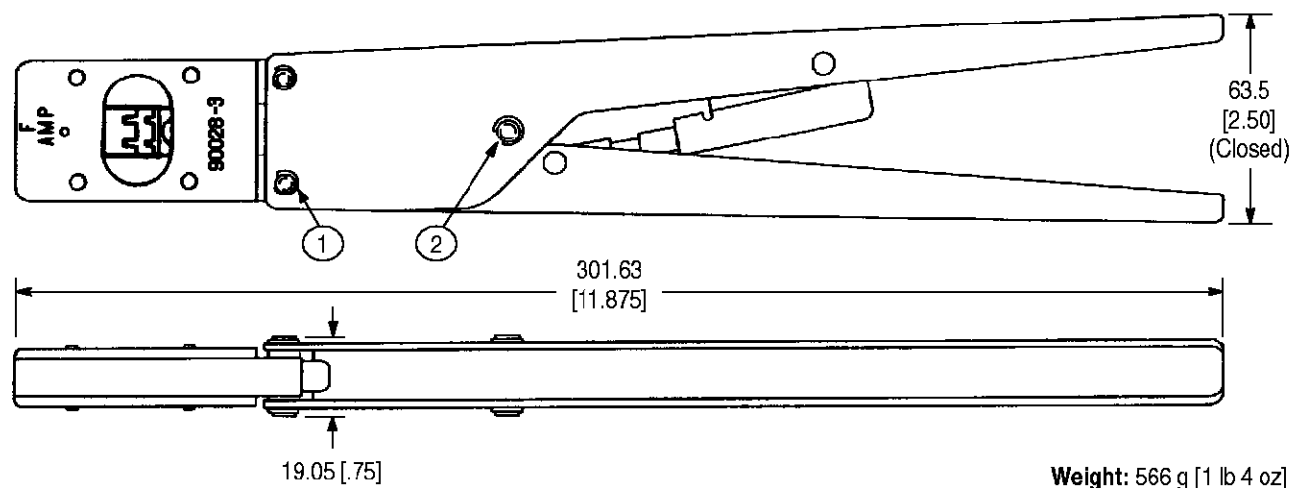
This inspection requires the use of a modified micrometer with a modified anvil and spindle, as shown in Figure 4. A recommendation is the Crimp Height Comparator RS-1019-5LP which can be purchased from:

Shearer Industrial Supply Co.
20 North Penn Street
York, PA 17401-1014

or VALCO
1410 Stonewood Drive
Bethlehem, PA 18017-3527

Proceed as follows:

1. Refer to the table in Figure 1 and select a terminal and a maximum size wire for each crimp section listed in the table.
2. Refer to Section 3, CRIMPING PROCEDURE, and crimp the terminal(s) accordingly.
3. Using a crimp height comparator, measure the wire barrel crimp height as shown in Figure 4. If the crimp height conforms to that height, the tool is considered dimensionally correct. If not, the tool must be returned for evaluation and repair. See Section 5, REPLACEMENT AND REPAIR.



CUSTOMER-REPLACEABLE PARTS

ITEM	PART NUMBER	DESCRIPTION	QTY PER TOOL
1	21045-3	RING, Retaining	4
2	21045-9	RING, Retaining	2

CAUTION: Do not remove the retaining rings as permanent damage to the tool could result.

Figure 5

For additional information concerning the use of the crimp height comparator, refer to instruction sheet 408-7424.

If the tool conforms to these inspection procedures, lubricate it with a THIN coat of any good 20 SAE motor oil and return it to service.

D. CERTI-CRIMP Ratchet Inspection

Obtain a 0.03 [.001] shim that is suitable for checking the clearance between the bottoming surfaces of the crimping dies.

Proceed as follows:

1. Select a contact, wire (maximum size), and the designated crimp section for the contact you are using. See Figure 1.
2. Position the contact and wire between the crimping dies, according to Section 3, CRIMPING PROCEDURE. Holding the wire in place, squeeze the tool handles together until the CERTI-CRIMP ratchet releases. Hold the tool handles in this position, maintaining just enough pressure to keep the dies closed.
3. Check the clearance between the bottoming surfaces of the crimping dies. If the clearance is 0.025 [.001] or less, the ratchet is satisfactory. If clearance exceeds 0.025 [.001], the ratchet is out of adjustment and must be repaired. See Section 5, REPLACEMENT AND REPAIR.

5. REPLACEMENT AND REPAIR

Replacement parts are listed in Figure 5. Parts other than those listed in Figure 5 should be replaced by Tyco to ensure quality and reliability of the tool. Order replacement parts through your representative, or call 1-800-526-5142, or send a facsimile of your purchase order to 1-717-986-7605, or write to:

CUSTOMER SERVICE (38-35)
TYCO ELECTRONICS CORPORATION
P.O. BOX 3608
HARRISBURG, PA 17105-3608

For tool repair service, please contact a representative at 1-800-526-5136.

6. REVISION SUMMARY

Since the previous release of this sheet, the following changes were made:

Per EC 0990-1461-99

- Changed wire size range (AWG) and crimp symbol in Figures 1 and 4
- Removed obsolete part numbers in Figures 1 and 4